

# Work Order ID 55514

January 19, 2010 2:29:18 PM



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Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 1/20/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 2/9/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: mf Date: 10-1-19

Tooling:

Date:

Run Start



QC: Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D350-748-241	Rev E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-201 CHG001

8/10/08/10

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT E

(IX)

~~MB~~

MB 10-06-07

120

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

①

~~MB~~

MB 10-06-08

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Crosstubes	0.00							
Crosstubes									
Crosstubes	<b>Memo</b>	0.00							
	1-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs, Set-up drill table as per QSI 010								
	2-Deburr								
	3-Engrave Part # and Batch # as per Dwg D350-748-241								
	4-Remove all marks from tube within limits of D350-748-241								
	5- Apply a light coat of LPS3 on the interior of tube Batch: 167956								
140	QC6- Inspect dimensions to drawing	0.00							
QC									
Quality Control	<b>Memo</b>	0.00							

MP 10-06-09  
AWM 10-06-09  
AWM 10-06-09  
10-06-09  
Exhibito

(R)

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

150

Outsource process-Cadplate per QSI017 4.1.9.1

0.00



Outsource3

Memo

0.00

Outsource process - Cad plate

Issue P/O: 12042  
Stress relief at 375° for 5 hours  
Magnetic Particle Inspect per ASTM E1444  
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2  
Embrittle relief at 375° for 8 hours, Chromate Treat  
Possible Supplier: Southwest United Industries  
Ensure Certificate of Conformity is attached

BS10-6-10  
(1)

160

Receive &amp; Inspect for Damage &amp; Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure certificate of conformity is attached

10/8/10 sf

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8 12/20/19(7)

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Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	SprayPaint	0.00							
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Paint Outside of Tube as per Dart QSI 005 4.2								
190 	QC14- Inspect Spray Paint	0.00							
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								
200 	Crosstubes	0.00							
Crosstubes	Memo	0.00							
Crosstubes	1-Install Ground wire Insert, then insert screw and washer 2-Install Abraison strips as per Dwg D350-748-241 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN- LBS								

85 10-08-18 (X1)

MA 10 08 19 (1)

85 10-08-19

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00	81018/19						
220  Packaging Packaging	Pick Kit  Memo	0.00  0.00				10/8/2010			
230  QC Quality Control	QC4- 100% Inspect kits for completeness  Memo	0.00  0.00	81018/20						

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD350-748-201								
	Location: _____								
	PPP Rev: <u>A</u>								
250	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

10/8/20 SF

CMF  
10-8-20  
1008-20

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Work Order ID: 55514



Parent Item: D350-748-201



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Start Date: 1/20/2010

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Comments: IPP Rev: A New Issue 06-07-05 JLM  
 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D350-748-241TRN

Manufactured No

110

Each

4.0000

1.0000



Crosstube Turning Detail

B-55373 MB 10-06-07

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

FG

4

47167

1

47170

1

47171

1

47172

1

ALS4-1032-225

Purchased

No

200

Each

6,686.000

1.0000



Insert

ET 10-08-19

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST

6686

107441

16

110768

6670

AN960JD10

Purchased

No

200

Each

0.0000

1.0000



Washer

m 115107+1

ET 10-08-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



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 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D2856-400

Manufactured No

200

f

290.3921

1.2432

B56626 + 1.2432



RT 10-08-19



Abraison Strip

Warehouse	Loc Qty	Loc Code
Location		

Main Warehouse

ST403

290.3920842

50593

141.312084

52563

149.08

1- cut as per dwg D2856

D3502-1

Manufactured No

200

Each

83.0000

2.0000



RT 10-08-19

Support

Warehouse	Loc Qty	Loc Code
Location		

Main Warehouse

ST

5

41603

2

42968

2

47120

1

Main Warehouse

ST107

40

52903

40

x2

Main Warehouse

ST168

38

50287

38

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

MS21920-20 Purchased No

200

Each

115.3000

2.0000



m 114687 x2



RT 10-08-19

Clamp (per MIL-DTL-8783C)

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	115.3	
103478	2	
106484	12	
109269	9.3	
110536	10	
112307	32	
112624	39	
112793	11	

MS27039-1-10 Purchased No

200

Each

203.0000

1.0000



RT 10-08-19

Screw

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	203	
112794	89	
112828	14	
112940	100	

71

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

AN4-41A

Purchased No

220

Each

242.0000

8.0000



Bolt



*10/18/00*

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST

242

105940

4

110363

16

110731

50

111424

50

112082

22

113359

100

AN4-6A

Purchased No

220

Each

1,559.0000

16.0000



Bolt



*10/18/00 SP*

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST

1559

112314

159

112641

100

112720

100

112829

300

112933

300

113149

600

*10*

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 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

AN5-32A

Purchased

No

220

Each

175.0000

4.0000



Bolt



M114058 10/8/2008

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST

175

106242

3

106519

4

110363

17

112805

1

112933

50

113121

100

AN960JD416

Purchased

No

220

Each

149.0000

32.0000



Washer



M115000 10/8/2008

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST

149

112314

149

16941

0

AN960JD516

Purchased

No

220

Each

0.0000

8.0000



Washer



M114702 10/8/2008

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 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

MS21042L4 Purchased No 220 Each 3,697.000 24.0000  
 Nut

M114704 10/8/2005

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	3697
102552	6
104248	6
110507	184
111827	2501
113422	1000
15924	0

MS21042L5 Purchased No 220 Each 550.0000 4.0000  
 Nut

M114713 10/8/2005

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	550
110382	10
111636	1
112314	39
113523	300
113537	200

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6018-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

#55514

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6018-125  
FINISHED LENGTH = 122.700±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED  
2009-10-29

REV.	DESCRIPTION	BY	DATE
E	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. E
CHECKED	RF	D350-748-241	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE (AS 350/355 HI AFT)	NTS
DE APPR.	RF	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	09.09.30		



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

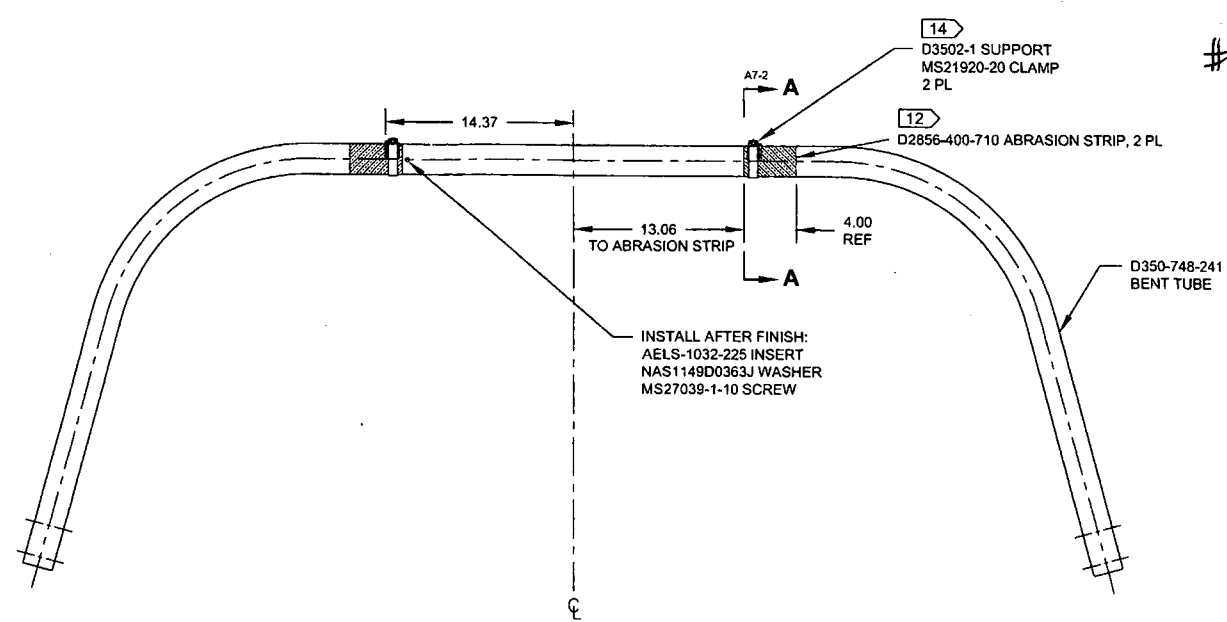
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

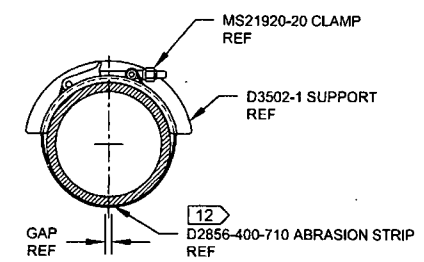
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

#55514



**D350-748-241  
ASSEMBLY DETAIL**



**SECTION A-A** D4-2  
SCALE 4X

**RELEASED**  
2009-10-29  
*MD*

DESIGN	90	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO.	REV. E
MFG. APPR.	DS	D350-748-241	SHEET 2 OF 4
APPROVED	10	TITLE	SCALE
DE APPR.	4	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

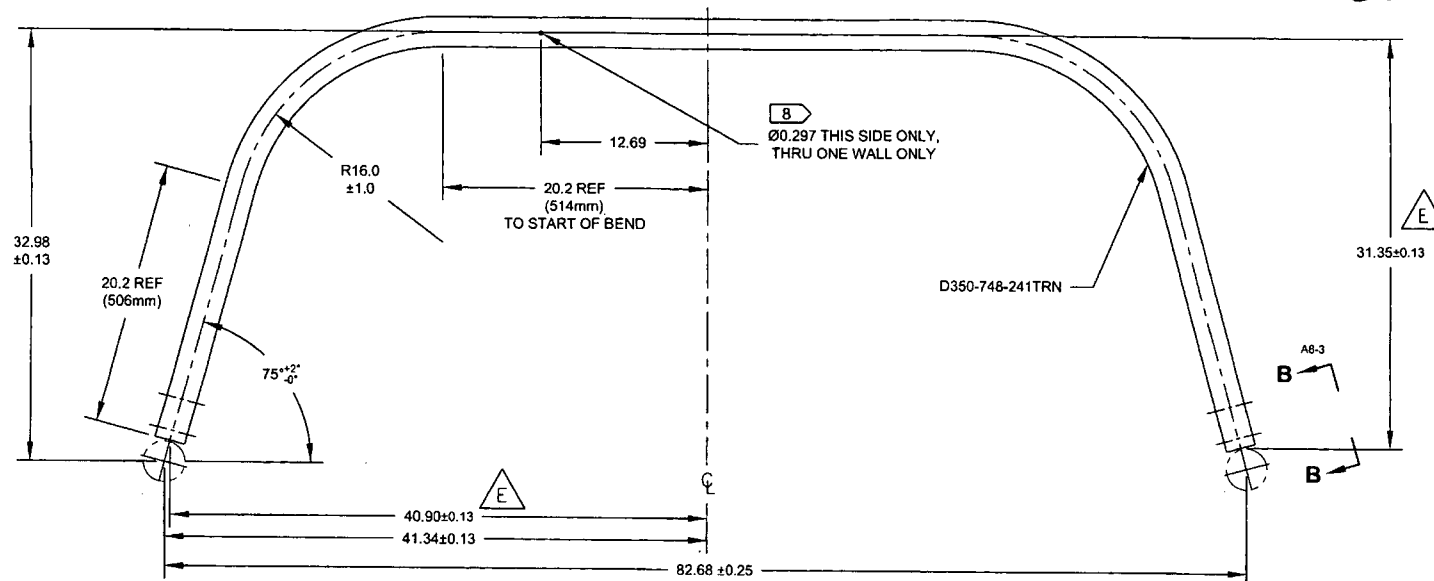
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

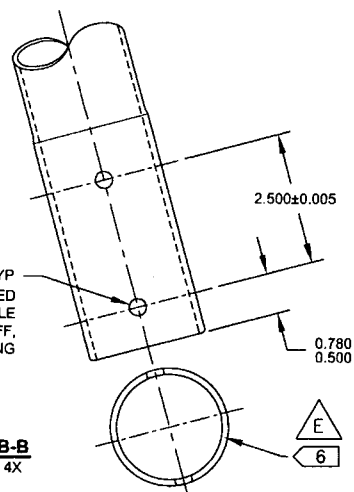
#55514



**D350-748-241**  
**BENDING AND DRILLING DETAIL** 10

Ø0.323<sup>+0.005</sup><sub>-0.006</sub> THRU, TYP  
 HOLE TO BE ALIGNED  
 WITHIN ±0.001 OF HOLE  
 ON OTHER SIDE OF CUFF,  
 TO BE DRILLED AFTER BENDING

C2-3 **VIEW B-B**  
 SCALE 4X



**RELEASED**  
 2009-10-29  
 MD

DESIGN	QP	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	QP	DRAWING NO.	REV. E
MFG. APPR.	DS	D350-748-241	SHEET 3 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2006 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Technical drawing of a shaft assembly, showing dimensions, tolerances, and section markers. The drawing is oriented horizontally with a vertical centerline (CL) indicated by a dashed line. The shaft is divided into several sections, labeled with section markers 1 through 8 at the top. The dimensions and tolerances are as follows:

- Section 1:** 2.299 STOCK, REF MIN WALL 0.130
- Section 2:** 2.299 STOCK, REF MIN WALL 0.130
- Section 3:** 2.299 STOCK, REF MIN WALL 0.130
- Section 4:** 2.299 STOCK, REF MIN WALL 0.130
- Section 5:** 2.299 STOCK, REF MIN WALL 0.130
- Section 6:** 2.299 STOCK, REF MIN WALL 0.130
- Section 7:** 2.299 STOCK, REF MIN WALL 0.130
- Section 8:** 2.299 STOCK, REF MIN WALL 0.130

The shaft is divided into several sections, labeled with section markers 1 through 8 at the top. The dimensions and tolerances are as follows:

- Section 1:** 2.299 STOCK, REF MIN WALL 0.130
- Section 2:** 2.299 STOCK, REF MIN WALL 0.130
- Section 3:** 2.299 STOCK, REF MIN WALL 0.130
- Section 4:** 2.299 STOCK, REF MIN WALL 0.130
- Section 5:** 2.299 STOCK, REF MIN WALL 0.130
- Section 6:** 2.299 STOCK, REF MIN WALL 0.130
- Section 7:** 2.299 STOCK, REF MIN WALL 0.130
- Section 8:** 2.299 STOCK, REF MIN WALL 0.130

The shaft is divided into several sections, labeled with section markers 1 through 8 at the top. The dimensions and tolerances are as follows:

- Section 1:** 2.299 STOCK, REF MIN WALL 0.130
- Section 2:** 2.299 STOCK, REF MIN WALL 0.130
- Section 3:** 2.299 STOCK, REF MIN WALL 0.130
- Section 4:** 2.299 STOCK, REF MIN WALL 0.130
- Section 5:** 2.299 STOCK, REF MIN WALL 0.130
- Section 6:** 2.299 STOCK, REF MIN WALL 0.130
- Section 7:** 2.299 STOCK, REF MIN WALL 0.130
- Section 8:** 2.299 STOCK, REF MIN WALL 0.130

0.063 MIN

CHAMFER AS REQUIRED FOR TOOLING LEAVING 0.062 REF MIN EDGE DISTANCE. ENSURE CHAMFER TOOL PATH RUNS OFF I.D.

R0.063

4.26 $\pm$ 0.030 FROM END OF TUBE TO START OF RAD

SEE DETAIL E

A3-4

[illegible]

RELEASED  
2009-10-29

DESIGN	90	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA  DRAWING NO. _____ D350-748-241  TITLE _____ CROSSSTUBE (AS 350/355 HI AFT)  COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND NOT BE LOANED, REPRODUCED OR COPIED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	REV. _____
DRAWN	RF		SHEET 4 OF _____
CHECKED	90		SCALE _____
MFG. APPR.	90		NT _____
APPROVED	90		
DE APPR.	90		
DATE	09.09.30		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

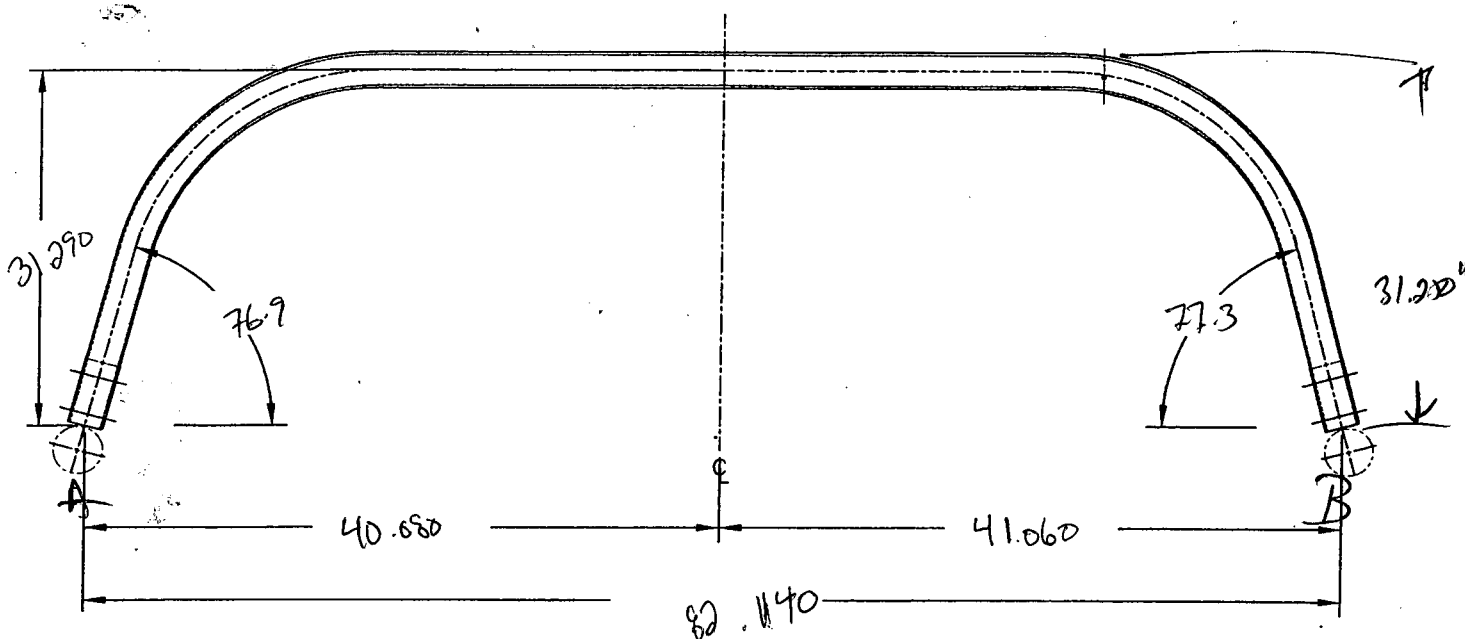
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 55514
<b>Description:</b> Crosstube High Aft (AS350/355)		<b>Part Number:</b> D350-748-201
<b>Inspection Dwg:</b> D350-748-241	<b>Rev:</b> D/E	<b>Page 1 of 1</b>

E 10.01.19

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
first 0.392"

QC15 Inspection	10-06-08
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jul-05-2010

**CONSIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 96458

**INVOICE #:** 50229

**CONTRACT OR  
PURCHASE ORDER #**

12062

**DESCRIPTION:** SKID

**QTY**

1

**P/N #** D350-748-201

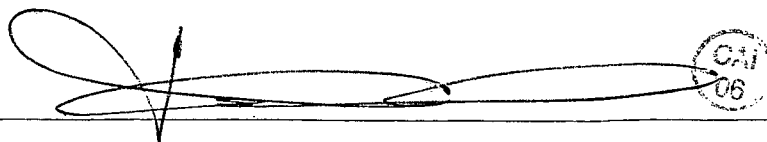
**S/N #** B55514

**STRESS RELIEF HEAT CHART #10-634. MPI IAW ASTM-E-1444.  
CADMIUM PLATE IAW AMS-QQ-P-416B TYPE 2 YELLOW CLASS 1.  
BAKE HEAT CHART # 10-686.**

*8/10/06/19. tubes were Damaged  
Duni Transport.  
see next Page*

**CERTIFICATE: I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.**

**Approved Inspector:**



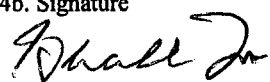



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: B 55514  
D350-748-201 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: / Date: 10.08.18  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10.08.18	150	DAMAGE TO CAD PLATE DUE TO TRANSPORT ACCIDENT REF. NCR 10-308	<u>CP</u> 10.08.18 QS1042	Touch up CAD PLATE PER <del>Q51</del> 1CA-D350-748 CHAPTER 5	See next p. 28	<u>S</u> 10/08/18	<u>CP</u> 10.08.18 QS1042	<u>/</u> 10.08.18

NOTE: Date & initial all entries

1. Approving Civil Aviation Authority/Country <b>Transport Canada</b>		2. <b>AUTHORIZED RELEASE CERTIFICATE FORM ONE</b>			3. Form tracking No. HTV-2636 Page 1 of 1		
4. Approved organization name and address <b>HELITRADES INC. 18 Terry Fox Drive, Vankleek Hill, Ontario, K0B 1R0, Canada</b>					5. Work order/contract/invoice <b>H-16610</b>		
6. Item	7. Description	8. Part No.	9. Qty	10. Serial/Batch No.	11. Status/work		
1	CROSSTUBE	D350-748-201	5	55513 55516 55515 <u>55514</u> 59173	REPAIRED  8/10/05		
12. Remarks BRUSH CADMIUM PLATING REPAIR CARRIED OUT I.A.W. THE DART AEROSPACE ICA-D350-748 PAGE 9 OF 19 REV.1  DOCUMENTATION FOR ALL WORK PERFORMED IS AVAILABLE ON FILE UNDER HELITRADES W/O SPECIFIED IN BLOCK # 5.							
13a. Certifies that the items identified above were manufactured in conformity to:  <input type="checkbox"/> Approved design data and are in condition for safe operation.  <input type="checkbox"/> Non approved design data specified in block 12.			14a. <input checked="" type="checkbox"/> CAR 571.10 Maintenance Release.  <input type="checkbox"/> Other regulations specified in block 12. Certifies that, except where otherwise specified in block 12, the work identified in block 11 and described in block 12 was performed in accordance with the Canadian Aviation Regulations.				
13b. Signature		13c. Approved Organization Number		14b. Signature  		14c. Approved Organization Number  AMO 3/86	
13d. Name		13e. Date (dd/mm/yyyy)		14d. Name  GERALD TOM		14e. Date (dd/mm/yyyy)  17-Aug-10	
<p>"This certificate does not constitute authority to install. Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified. Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown."</p>							

(Previously form 24-0078)

## 5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

\* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

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Revision: **B**

Date: 07.06.15

# Work Order ID 55514

January 19, 2010 2:29:18 PM

Item ID: D350-748-201

Accept

Setup Start

Revision ID:

Item Name: Crosstube Installation, High Aft

Start Date: 1/20/2010 Start Qty: 1.00

Required Date: 2/9/2010 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan: *mf*

Date: 10-1-19

Tooling:

Date:

Run Start

Stop

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

D350-748-241

Rev E

0.00

100

DOCUMENT CONTROL

0.00



DC

Memo

Document Control

Photocopy bluefile &amp; type labels per PPPD350-748-201

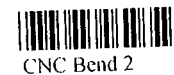
CHG001

0.00

110

BENDING MACHINE - CROSSTUBES

0.00



CNC Bend 2

Memo

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

0.00

QC15- Crosstube Dimensional Check

120



QC

Memo

Quality Control

0.00

REFERENCE ONLY

C2 10/8/19

IX

MB 10 01

1

10 06 08